

REMARKS

Claims 1, 3, 5-7, 9-13, 15-18, 20 and 23-25 are currently pending in the Application. Claims 1, 3, 5-6, 10, 12, 15-17 and 20 have been amended for stylistic purposes. These amendments do not add any new matter. Claims 2, 4 and 14 have been cancelled in order to expedite prosecution.

Claims 23-25 are new claims. Specifically, claim 23 describes an embodiment where the R protecting group in a compound in claim 17 is Boc. Support for this claim can be found at least in FIG. 9 and Paragraph 50 of the Application. Claims 24-25 are new claims describing embodiments where the buckyketone in the amino acid composition of claim 1 and the synthetic polymer of claim 10 is buckyketone 1. Support for these new claims can be found at least in FIG. 1 and Paragraphs 34 and 46 of the Application.

Paragraphs 7, 24, 48 and 52-53 of the Application have been amended for stylistic purposes, and to properly reference SEQ ID NOS. FIG. 12 of the Application has also been amended in order to properly reference SEQ ID NOS. These amendments do not add any new matter. Applicants hereby address the Examiner's remarks in the order that they appeared in the Office Action.

I. Amendments to the Specification

In the Office Action, the Examiner indicated that the prior amendments to the specification were not entered because the amendments did not provide the full text of the paragraphs being replaced. Office Action, page 2. In addition, the Examiner indicated that proper identification of actual line numbers is preferable for many of the amendments. *Id.*

Applicants have now provided the full text of the paragraphs being replaced. In addition, Applicants have properly identified the relevant line numbers. Therefore, Applicants respectfully request the Examiner to enter the amendments to the specification.

II. Amendments to the Claims

In the Office Action, the Examiner objected to the claims for having claim text present in cancelled claims 8, 19, 21 and 22. Office Action, page 2. These objections are considered moot in view of the deletion of the text from the aforementioned cancelled claims.

III. Objections to the Sequence Disclosures

In the Office Action, the Examiner objected to the previously-submitted sequence disclosures on several grounds. Office Action, page 3. In particular, the Examiner indicated that the “top two sequences in Figure 12 have not been provided with SEQ ID NOS and do not appear to be listed in the Sequence Listing.” *Id.* The Examiner also indicated that SEQ ID NO. 1 in FIG. 12 does not correspond to SEQ ID NO. 1 in the Sequence Listing. In addition, the Examiner has alleged that the Sequence Listing contains “new matter” because encompassing Xaa in SEQ ID Nos. 1-2 to include “any linker molecule” is allegedly not supported by the specification. *Id.*

Applicants consider the aforementioned objections to be moot in view of the amendments set forth in this Response. To begin with, FIG. 12 has been amended to indicate that the “top two sequences” now refer to SEQ ID NO. 4. FIG. 12 has also been amended to indicate that SEQ ID NO. 1 now refers to SEQ ID NO. 3, which encompasses six residues of Fullerene Peptide I (Paragraph 52 of the Application has also been amended to indicate the same).

Furthermore, as set forth in more detail below, the Sequence Listing has been amended to indicate that Xaa refers to bulky amino acid (Baa). The Sequence Listing has also been amended to include SEQ ID NOS. 3-4.

IV. Objections to the Drawings

In the Office Action, the Examiner objected to FIG. 12. Office Action, pages 3-4. In particular, the Examiner indicated that SEQ ID NOS must be inserted after the top two sequences

recited in FIG. 12. *Id.* The Examiner also indicated that SEQ ID NO. 1 in FIG. 12 does not correspond to SEQ ID NO. 1 in the Sequence Listing. *Id.*

Applicants hereby submit a revised version of FIG. 12 in Replacement Sheet 12/13. The revised version of FIG. 12 indicates that the top two sequences in FIG. 12 now refer to SEQ ID NO. 4. The revised version of FIG. 12 also indicates that SEQ ID NO. 1 refers to SEQ ID NO. 3, six residues of Fullerene Peptide I. Therefore, Applicants consider the aforementioned objections to be moot.

V. Objections to the Disclosure

The Examiner also objected to the disclosure for containing various misspellings and inconsistent references to SEQ ID NO. 1. Office Action, pages 4-5. Applicants respectfully submit that these objections are considered moot in view of the above-mentioned amendments to Paragraphs 7, 24, 48 and 52-53 and FIG. 12.

VI. Objections to the Sequence Listing

In the Office Action, the Examiner also objected to the Sequence Listing for allegedly introducing new matter into the disclosure. Office Action, page 5. In particular, the Examiner has alleged that the Sequence Listing contains “new matter” because encompassing Xaa in SEQ ID NOS. 1-2 to include “any linker molecule” is allegedly not disclosed in the specification. *Id.* Accordingly, the Sequence Listing has been revised to indicate that Xaa refers to bulky amino acids (Baa). As the Examiner admits, the specification provides support for this disclosure. Therefore, the new matter rejection is considered moot.

Applicants hereby submit a computer readable form (CRF) copy of the revised Sequence Listing for the above matter for entry into the above-referenced Application. Applicants submit that the Sequence Listing submitted herewith is compliant with the requirements of 37 CFR § 1.821 through 1.825. Applicants further state that the contents of the computer readable form

copy of the Sequence Listing are the same as the written sequence listing in the Application, and no new matter has been introduced.

VII. Rejections under 35 U.S.C. § 112, First Paragraph

In the Office Action, the Examiner rejected claims 1-2, 4-7 and 9-16 under the first paragraph of 35 U.S.C. § 112 for allegedly failing to comply with the written description requirement. Office Action, page 6. Specifically, the Examiner has alleged that there is “no original disclosure supporting the recitation of ‘a buckyketone’” in claims 1 and 10. *Id.* Rather, the Examiner alleges that there is only a single buckyketone disclosed in the specification as buckyketone 1. *Id.* The Examiner also alleges that “[t]o the extent that ‘a buckyketone’ is intended to encompass a broader range of compounds, the genus is not supported by the single originally disclosed species.” *Id.*

For the reasons set forth below, Applicants respectfully traverse the Examiner’s rejections and arguments. In support of their position, Applicants hereby submit the Declaration of Dr. Andrew R. Barron under 37 C.F.R. §1.132 (hereinafter “Declaration”).

The written description requirement for a claimed genus may be satisfied through (1) sufficient description of a representative number of species by actual reduction to practice; (2) reduction to drawings; (3) or by disclosure of relevant, identifying characteristics. *See Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1568 (Fed. Cir. 1997). *Also see* M.P.E.P. §2163. Here, the Application provides sufficient written description for “a buckyketone” through (1) at least two representative number of species; (2) drawings; and (3) disclosure of relevant, identifying characteristics.

For instance, in addition to buckyketone 1, the Application also discloses fullerenes with “two cyclohexagonal ketone rings.” *See, e.g.*, Paragraph 38 and FIG. 1 (structure 6). *Also see* Declaration, Paragraph 4. Furthermore, FIGS. 1-3 and 9-10 adequately disclose the structures of buckyketones 1 and 6. *See* Declaration, Paragraph 4. In addition, the Application discloses relevant identifying characteristics of buckyketones. *See, e.g.*, Paragraph 34 (stating that,

“[s]ince the ketone functionality is a very reactive functional group, reaction of buckyketone 1 can lead to a series of fullerene derivatives with potential medicinal applications.”). *Also see* Paragraph 36 and Scheme 2 in FIG. 1 (illustrating and describing how “the nucleophilic addition of buckyketone 1 and N--Ac-(4-amino)-Phe-OMe 2 readily leads to the formation of the buckylimine 3”). *Also see* Paragraphs 46 and 49-51. *Also see* Declaration, Paragraph 5.

Furthermore, even though the Application provides more than one species of a “buckyketone”, there have been instances where one species adequately supports a genus to a person of ordinary skill in the art. *See, e.g., In re Rasmussen*, 650 F.2d 1212, 1214 (CCPA 1981) (disclosure of a single method of adheringly applying one layer to another was sufficient to support a generic claim to “adheringly applying” because one skilled in the art reading the specification would understand that it is unimportant how the layers are adhered, so long as they are adhered). *Also see In re Herschler*, 591 F.2d 693, 697 (CCPA 1979) (disclosure of corticosteroid in DMSO sufficient to support claims drawn to a method of using a mixture of a “physiologically active steroid” and DMSO because “use of known chemical compounds in a manner auxiliary to the invention must have a corresponding written description only so specific as to lead one having ordinary skill in the art to that class of compounds.”). *Also see In re Smythe*, 480 F.2d 1376, 1383 (CCPA 1973) (the phrase “air or other gas which is inert to the liquid” was sufficient to support a claim to “inert fluid media” because the description of the properties and functions of the air or other gas segmentizing medium would suggest to a person skilled in the art that appellant's invention includes the use of “inert fluid” broadly.).

Here, the disclosure of buckyketone 1 and buckyketone 6 in the Application conveys to a person of ordinary skill in the art that the Application provides sufficient written description for “a buckyketone”, as described in claims 1 and 10. *See* Declaration, Paragraph 6.

In the Office Action, the Examiner also alleged that “there is no original disclosure supporting the recitation in claim 10 of a polymer comprising the general formulae, each of which comprises two terminal amine groups.” Office Action, page 6. Applicants respectfully disagree with the Examiner because polymer compositions comprising two terminal amine

groups can be generated in instances where buckyketones comprising two ketone groups are utilized (such as buckyketone 6). Support for this embodiment can be found at least in Paragraph 38 and FIG. 1 (Scheme 1) of the Application. Applicants further assert that such embodiments are encompassed within the scope of independent claim 10. *See* Declaration, Paragraph 7.

VIII. Rejections under 35 U.S.C. § 112, Second Paragraph

In the Office Action, the Examiner rejected claims 5-7, 12, 14-18 and 20 under the second paragraph of 35 U.S.C. § 112 for allegedly being indefinite. Office Action, pages 6-7. Applicants respectfully submit that amendments to claims 5-6, 12 and 17 overcome the aforementioned rejections. Furthermore, Applicants consider the rejection of claim 14 to be moot in view of the cancellation of that claim.

IX. Claim Objections

The Examiner also objected to claims 3, 17-18 and 20 for allegedly containing illegible structures. Office Action, page 7. The Examiner also objected to claim 4 for allegedly being in improper dependent form. *Id.* at pages 7-8. In addition, the Examiner objected to claims 2 and 14 for being identical in scope with claims 1 and 10, respectively. *Id.* at page 8. The Examiner's objections to claims 3, 17-18 and 20 are considered to be moot in view of the amendments to those claims. The Examiner's objections to claims 2, 4 and 14 are also considered to be moot in view of the cancellation of those claims.

X. Allowability of Claims 3, 17-18 and 20

Applicants acknowledge the Examiner's indication that claims 17-18 and 20 would be allowable if "rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and the claim objections set forth in this Office action." Office Action, page 10. Since the claims have been rewritten and amended to overcome the Examiner's rejections and objections, Applicants respectfully request an allowance of those claims.

Applicants also acknowledge the Examiner's indication that claim 3 would be allowable if "rewritten to overcome the claim objections set forth in this Office action and to include all the limitations of the base claim and any intervening claims." *Id.* at page 10. However, for the reasons set forth in this Response, Applicants respectfully assert that claim 3 and its base claims and intervening claims are allowable as currently pending.

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CONCLUSION

For at least the reasons stated above, Applicants assert that claims 1, 3, 5-7, 9-13, 15-18, 20 and 23-25 are in condition for allowance. Accordingly, Applicants respectfully request an allowance of the aforementioned claims. Applicants also request that the Examiner call Applicants' Attorney at the below listed number if the Examiner believes that such a discussion would be helpful in resolving any remaining issues.

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Respectfully submitted,

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